

WHAT IS CLAIMED IS:

1. A multi-component electrically conductive fiber comprising:
a first component comprising a first polyester having dispersed therein an electrically conductive material, wherein the first polyester has a first melting temperature; and
a second component comprising a second polyester which is not the same as the first polyester, wherein the second polyester has a second melting temperature;
wherein the difference between the first melting temperature and the second melting temperature is not more than about 10°C.
2. The multi-component electrically conductive fiber of claim 1 wherein the first polyester is a copolymer of terephthalic acid or a lower alkyl ester thereof, a C2-C10 aliphatic or cycloaliphatic diol, and one or more modifiers selected from the group consisting of diols, diacids, and diesters.
3. The multi-component electrically conductive fiber of claim 3 wherein the one or more modifiers is selected from the group consisting of ethylene glycol, diethylene glycol, propylene glycol, butanediol, cyclohexanedimethanol, adipic acid, maleic acid, and phthalic acid.
4. The multi-component electrically conductive fiber of claim 1 wherein the first polyester is a polybutylene terephthalate (PBT) based polymer.

5. The multi-component electrically conductive fiber of claim 1 wherein the first polyester is a polytrimethylene terephthalate (PTT) based polymer.
6. The multi-component electrically conductive fiber of claim 1 wherein the second polyester is polybutylene terephthalate (PBT).
7. The multi-component electrically conductive fiber of claim 1 wherein the second polyester is polytrimethylene terephthalate (PTT).
8. The multi-component electrically conductive fiber of claim 1 wherein the electrically conductive material comprises carbon black.
9. A method of preparing a drawn multi-component electrically conductive fiber, the method comprising:
 - preparing an undrawn fiber by co-extruding a first component comprising a first polyester having dispersed therein an electrically conductive material and a second component comprising a second polyester which is not the same as the first polyester, wherein the first polyester has a first melting temperature and the second polyester has a second melting temperature, wherein the difference between the first melting temperature and the second melting temperature does not exceed about 10°C; and
 - drawing the undrawn fiber while applying heat to form a drawn fiber.
10. The method of claim 9 wherein the drawn fiber has an electrical conductivity which is not less than the electrical conductivity of the undrawn fiber.

11. The method of claim 9 wherein the first polyester is more amorphous than the second polyester.
12. The method of claim 9 wherein the electrical conductivity of the drawn fiber is greater than the electrical conductivity of the undrawn fiber.
13. The method of claim 9 wherein the first polyester is a copolymer of terephthalic acid or a lower alkyl ester thereof, a C2-C10 aliphatic or cycloaliphatic diol, and one or more modifiers selected from the group consisting of diols, diacids, and diesters.
14. The method of claim 13 wherein the one or more modifiers is selected from the group consisting of ethylene glycol, diethylene glycol, propylene glycol, butanediol, cyclohexanedimethanol, adipic acid, maleic acid, and phthalic acid.
15. The method of claim 9 wherein the first polyester is a polybutylene terephthalate (PBT) based polymer.
16. The method of claim 9 wherein the first polyester is a polytrimethylene terephthalate (PTT) based polymer.
17. The method of claim 9 wherein the second polyester is polybutylene terephthalate (PBT).

18. The method of claim 9 wherein the second polyester is polytrimethylene terephthalate (PTT).

19. The method of claim 9 wherein the electrically conductive material comprises carbon black.

20. A method of preparing a drawn bi-component electrically conductive fiber, the method comprising:

preparing an undrawn fiber by co-extruding (i) an electrically conductive first component comprising a copolymer of terephthalic acid or a lower alkyl ester thereof, a C2-C10 aliphatic or cycloaliphatic diol, and one or more modifiers selected from the group consisting of ethylene glycol, diethylene glycol, propylene glycol, butanediol, cyclohexanedimethanol, adipic acid, maleic acid, and phthalic acid; the copolymer having dispersed therein electrically conductive carbon black, and (ii) a non-conductive second component comprising polybutylene terephthalate; and

drawing the undrawn fiber at a temperature from about 80 to about 190°C to form a drawn fiber; wherein the drawn fiber has an electrical conductivity which is not less than the electrical conductivity of undrawn fiber.

21. The method of claim 20 wherein the drawn fiber has an electrical conductivity which is greater than the electrical conductivity of the undrawn fiber.